

# Phase II Solicitation

## High Performance Windows and Low-E Storm Windows

The following are the specifications and requirements for vendors submitting proposals for high performance windows and low-E storm windows into the volume purchase program

### High Performance Windows Specifications and Requirements

Specification	Mandatory Requirement
<b>Thermal Performance: Fixed window</b> <b>Thermal Performance: Operable window</b>	$U \leq 0.20 \text{ Btu/h-ft}^2\text{-}^\circ\text{F}$ $U \leq 0.22 \text{ Btu/h-ft}^2\text{-}^\circ\text{F}$
<b>Air Leakage</b>	$\leq 0.30 \text{ cfm/ft}^2$ . See High Performance Windows Testing and Certification Requirements (below).
<b>Solar Heat Gain Coefficient (SHGC)</b>	Must report NFRC-certified SHGC with windows bid into the program. Performance will be verified by NFRC Certified Product Directory number (CPD#).
<b>Condensation Resistance (CR)</b>	$CR \geq 50$ and reported with bid into the program. Performance will be verified by NFRC Certified Product Directory number (CPD#). Products using the Component Modeling Approach (CMA) are not required to meet this metric.
<b>Warranty Period-Glass</b> <b>Warranty Period-Non-glass</b> <b>Warranty Documentation</b>	Minimum of 20 years Minimum of 10 years Copy of warranty for all products must be entered with the products bid into the program.
<b>Frame Color</b>	All window frame colors are to be identified in the vendors' bid for each product.
<b>Structural</b>	See High Performance Windows Testing and Certification Requirements (below).
<b>Size and Pricing Categories</b>	See Windows and Low-E Storm Windows Size and Pricing Matrices (below).
<b>Minimum Bid Quantities</b> <b>Optional Bid Quantities</b>	20 for new or retrofit construction windows 1 for new or retrofit construction patio doors Bids are accepted for optional quantities. See Windows and Low-E Storm Windows Size and Pricing Matrices (below).

## High Performance Windows Testing and Certification Requirements

<b>Testing and Certification</b>	<p>Thermal - All products must be certified with NFRC. Products must appear with the required performance metrics in the NFRC certified product directory (CPD), or in the NFRC Component Modeling Approach (CMA) CPD.</p> <p>Structural - All products must be tested and certified according to the AAMA/WDMA/CSA 101/I.S.2/A440 North American Fenestration Standard/Specification (NAFS) for windows, doors and unit skylights (2005 or more recent version) by one of the following four certifying organizations; AAMA, WDMA, NAMI, Keystone Certifications, Inc.</p>														
<b>Structural Performance</b>	<p>Certification numbers must be provided for all products in the Bidding Templates included with the solicitation package.</p> <p>All windows products to be certified with NFRC for listing on the Volume Purchase Program web site. All products sold through the Volume Purchase Program will have an NFRC label affixed to window indicating values for Thermal Performance (U-factor), Solar Heat Gain Coefficient (SHGC), and Visible Transmittance (VT).</p> <p>The Structural Performance of the windows shall be tested according to AAMA/WDMA/CSA 101/I.S.2/A440 North American Fenestration Standard/Specification (NAFS) for windows, doors and unit skylights. (2005 or more recent version.) The highest performance grade that can be achieved at the gateway size for each performance class shall be included in the product bid. Class types of windows will follow the NAFS 2008 convention (R,LC,CW,AW) with products tested according to the 2005 version being converted as follows:</p> <table border="1" data-bbox="521 898 1507 1083"> <thead> <tr> <th>2005</th><th>2008</th></tr> </thead> <tbody> <tr> <td>R</td><td>R</td></tr> <tr> <td>LC</td><td>LC</td></tr> <tr> <td>C</td><td>LC*</td></tr> <tr> <td>HC</td><td>CW**</td></tr> <tr> <td>AW</td><td>CW</td></tr> <tr> <td></td><td>AW</td></tr> </tbody> </table> <p>*Default conversion when the window does not meet the L/175 deflection test or when deflection test results are not provided  **Conversion applies when manufacturer provides documentation that the window would meet the L/175 deflection test required by the 2008 CW class.</p> <p>If a window could be rated under more than one category in the 2005 standard and the above methodology results in two possible performance grades for a window, the higher performance grade will be displayed. For purposes of this program R and LC will be considered residential products while HC and AW will be considered commercial products.</p> <p>The minimum performance grade for all products regardless of class type is 25.</p>	2005	2008	R	R	LC	LC	C	LC*	HC	CW**	AW	CW		AW
2005	2008														
R	R														
LC	LC														
C	LC*														
HC	CW**														
AW	CW														
	AW														
<b>Air Leakage (AL)</b>	<p>Air leakage of the windows shall be measured using: NFRC 400-2010<sub>[EOA1]</sub> Procedure for Determining Fenestration Product Air Leakage.</p> <p style="text-align: center;"><u>or</u></p> <p>AAMA/WDMA/CSA 101/I.S.2/A440 North American Fenestration Standard/Specification (NAFS) for windows, doors and unit skylights. (2005 or most recent version.)</p>														

## U-factor Requirements for Higher Structural Performance

<b>Commercial Window (CW)</b>	<p>For windows tested to CW, the u-factor requirement is:</p> <p style="text-align: right;">Fixed: <math>U \leq 0.24 \text{ Btu/h-ft}^2\text{-F}</math>  Operable: <math>U \leq 0.27 \text{ Btu/h-ft}^2\text{-F}</math></p>
<b>Architectural Window (AW)</b>	<p>For windows tested to AW, the u-factor requirement is:</p> <p style="text-align: right;">Fixed: <math>U \leq 0.27 \text{ Btu/h-ft}^2\text{-F}</math>  Operable: <math>U \leq 0.32 \text{ Btu/h-ft}^2\text{-F}</math></p>

## Low-E Storm Windows Specifications and Requirements

Specification	Mandatory Requirement
Emissivity	< 0.22
Warranty Period-Glass Warranty Period-Non-glass	Minimum of 10 years Minimum of 10 years
Frame Color	All available frame colors are to be identified in the vendors' bid.
Size Categories	See Windows and Low-E Storm Windows Size and Pricing Matrices (below).
Minimum Bid Quantity Optional Bid Quantities	20 for Low-E storm windows.  Bids are accepted for optional quantities  See Windows and Low-E Storm Windows Size and Pricing Matrices (below).

## Low-E Storm Windows Testing and Registration Requirements

	Mandatory Requirement
<b>Product Testing and Registration</b>  <b>Performance</b>   <b>Structural</b>   <b>Product Certification</b>	<p>Test product in accordance with the following standards:</p> <p>All glass materials must be registered in the International Glazing Database (IGDB) with Lawrence Berkeley National Laboratory and measured in accordance with NFRC 300-09, 301-09, and 302-09. The glass manufacturer, the glass name, and the ID# as listed in the IGDB must be entered with every storm window bid.</p> <p style="text-align: center;"><u>and</u></p> <p>ANSI/AAMA 1002.10-93 (or later version). Product must meet requirements for <u>15</u> performance grade or higher.</p> <p style="text-align: center;"><u>or</u></p> <p>ASTM E1886-05 (or later version). Product must meet requirements for <u>15</u> performance grade or higher.</p> <p>Certification numbers must be provided for all products as assigned by one of the following four certifying organizations; AAMA, WDMA, NAMI, Keystone.</p>

### Windows and Low-E Storm Windows Size and Pricing Matrices

1-19 Windows*		20-49 Windows*		50-199 Windows*		200+ Windows*	
up to 50 UI		up to 50 UI		up to 50 UI		up to 50 UI	
51-60 UI		51-60 UI		51-60 UI		51-60 UI	
61-70 UI		61-70 UI		61-70 UI		61-70 UI	
71-80 UI		71-80 UI		71-80 UI		71-80 UI	
81-90 UI		81-90 UI		81-90 UI		81-90 UI	
91-100 UI		91-100 UI		91-100 UI		91-100 UI	
101-110 UI		101-110 UI		101-110 UI		101-110 UI	
111-120 UI		111-120 UI		111-120 UI		111-120 UI	
Each UI above 120		Each UI above 120		Each UI above 120		Each UI above 120	

\*Windows or Low-E Storm Windows. Prices are to be entered into Bidding Templates included with solicitation package. Please do not enter the bids here.

### Patio Doors Size and Pricing Matrices

1-9 Patio Doors		10-49 Patio Doors		50+ Patio Doors	
L x H		L x H		L x H	
6' x 6'-8"		6' x 6'-8"		6' x 6'-8"	
8' x 6'-8"		8' x 6'-8"		8' x 6'-8"	
9' x 6'-8"		9' x 6'-8"		9' x 6'-8"	

The tables above represent the sizing and pricing structure for all products in the program and are based on united inches (UI = height plus width). All qualified bids must contain at least one price in any UI category from one of the two shaded boxes above (either windows or low-E storm windows or patio doors). Once a vendor is qualified, any individual order of 20 to 49 windows or 20-49 low-E storm windows or 1 to 9 patio doors (including any combination of types and sizes) must be honored by the vendor and must be sold at or below the bid prices.

If a bidder would like to sell windows or low-E storm windows in quantities of less than 20 they may also complete the table labeled '1-19 Windows' for any UI category. If a bidder would like to price windows or low-E storm windows in quantities of greater than 49, they may choose to complete the optional tables for '50-199 Windows' and/or '200+ Windows'. If a bidder would like to price patio doors in quantities of greater than 9, they may choose to complete the optional tables for '10-49 Patio Doors' and/or '50+ Patio Doors'.

### Sales Reporting

The vendors in this program will be required to report window and patio door sales resulting from the program monthly to PNNL. The required template for reporting monthly sales is attached. The monthly sales report will be emailed to [pnnlwindowsvp@pnl.gov](mailto:pnnlwindowsvp@pnl.gov) by the 10th working day of the following month. Reporting of sales of a vendor's high performance windows and patio doors meeting the program specifications and not sold through the program is requested but not required.